MARSHALL STAR

Marshall Space Flight Center — Nov. 9, 2000

'We bring people to space — We bring space to people'

Marshall contractors selected for excellence awards

by Judy Milburn

Three Marshall contractors are being recognized for their commitment to customer satisfaction and product/service excellence. The Marshall Space Flight Center's Contractor Excellence Awards are presented annually to recognize outstanding product and service contributions made by contractors to the Marshall Center.

TRW Space and Electronics Group was selected this year's winner in the large-business product category. Sverdrup Technology Inc., took the award for the large-business service. Native American Services Inc., was the winner of the small-business service category.

Center Director Art Stephenson will present the awards during a ceremony later this month.

"These contractors have contributed significantly to the mission of Marshall, and have achieved measurable results over the last three years," said Amanda Goodson, Marshall's

*See **Excellence** on page 7*

Center Director Art Stephenson prepares to make good on his challenge to wash the car of an employee if 95 percent of Marshall's team members contribute to the Combined Federal Campaign. This year's campaign ends Nov. 17. As of last Thursday, the Center had 57 percent participation for $393,342.50. All it takes to participate is $1.

NASA'S Chandra captures telling gamma-ray afterglow

The Chandra Observatory's sharp-eyed X-ray vision has detected something never before seen. The discovery may help find the origin of what many researchers believe are the most powerful explosions in the Universe.

The clues are found in the afterglow of a gamma-ray burst, and could strengthen the case for a "hypernova" model, where massive collapsed stars generate these mysterious blasts of high-energy radiation.

An international team of scientists used the Marshall-managed Chandra to observe iron emission lines from ejected material surrounding one such burst known as GRB991216.

This is the first time emission lines associated with gamma-ray bursts have been unambiguously detected and their properties precisely measured at X-ray wavelengths.

"The discovery of iron lines in the X-ray spectrum is an important clue to our understanding of gamma-ray bursts," said Luigi Piro, lead author of the paper that appears in the Nov. 3 issue of the journal Science. "Studying the immediate area around the gamma-ray burst tells us a great deal about the origin of the burst itself."

GRB991216, first detected by Marshall's Burst and Transient Source Experiment aboard the Compton Gamma-ray Observatory, Dec. 16, 1999, was one of the brightest gamma-ray bursts ever found by that instrument. The Rossi X-ray Transient Explorer obtained a more accurate position. Chandra was able to reorient quickly in order to observe the event, while the flux level was still high.

The research team included Pennsylvania State University's Gordon Garmire, principal investigator for the Advanced CCD Imaging Spectrometer instrument, Michael Garcia of the Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass., and other colleagues from the United States, Italy, Japan, and the Netherlands.

For more, visit the Web at: http://chandra.harvard.edu

Native American Heritage Month

Marshall employees marking the Trail of Tears

by Debra Valine

Throughout America's history, there are many missing chapters. Many aspects of our history are being rewritten to more accurately reflect what really happened. The Trail of Tears — the removal of the Cherokee, Choctaw, Creek, Seminole and Chickasaw Indians from their homelands — is one incident.

The Trail of Tears — which runs along U.S. Highway 72 in Northern Alabama — is clearly marked with signs identifying the original trail, thanks to Marshall employees on the committee responsible for getting legislation passed and signed by Alabama's governor.

Each year in September, motorcycle riders from around the country follow the Trail of Tears in memory of the actual event. The 7th annual Trail of Tears commemorative motorcycle ride roared through Huntsville Sept. 17. Riding among the estimated 80,000 participants were nearly 50 Marshall employees, many of Native American ancestry.

Three of the original seven on the committee who started organizing the ride work at Marshall.

"We ride in honor of the Native American," said Jerry Davis, who works for EG&G. Davis, of Cherokee descent, said, "This is part of the forgiveness part of the process, not the chastising. We want to forgive, but not forget that part of our history."

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

EG&G employees Greg Bass, left, and Jerry Davis are among the Marshall team members on the Trail of Tears committee responsible for placing corridor markers along the original route.

Greg Bass, also of EG&G, was one of 68 riders who started the ride in Cherokee, N.C., near the historic trail's start.

"The concentration camp at Ross' Landing in Tennessee housed 1,070 Indians being removed from their land in 1838 due to the discovery of gold," Bass said. The Indian Removal Act authorized the removal of the Indians.

"The trail goes out to Waterloo, Ala., where the Indians were put on steamboats and journeyed along the Tennessee River with the ultimate destination being Oklahoma," Bass said.

"This trail was lost in history," Davis said. "Our club brought focus to it. Now the Trail of Tears — at least in Alabama — is clearly marked. Our goal is to mark the entire trail."

"We started by writing to senators, etc., to get this recognized," said Kenneth Campbell of EG&G. "We eventually got the bill passed into law."

The ride takes place every year on the third Saturday in September. Native American Heritage Month is in November.

The significance of the motorcycles is to focus on this dark part of history, Davis said. "We took a survey seven years ago and discovered only four of 10 people knew of the Trail of Tears. I would say that now nearly everyone has some knowledge of the Trail of Tears. It's an important part of Native American and Alabama history.

Marshall's Chief Financial Officer Dave Bates — whose great grandmother was Cherokee — has participated in the event for the past three years.

"It's fun," he said. "A lot of people on a lot of bikes come to Northern Alabama from all over the country. Participating in the ride makes you think about your heritage, and the rich heritage of Native Americans. It recognizes the Indians as a very important part of our heritage."

"The Trail of Tears set the policy for how Indians were treated for a long time," Davis said.

The Alabama/Tennessee Trail of Tears Corridor Assocation is all volunteer. "We make money selling T-shirts, pins and patches. We also accept donations. All the money is used to mark the trail," Campbell said.

For more information, visit the Web at: www.al-tn-trailoftears.org

The writer, employed by ASRI, is the Marshall Star editor.

Team Redstone celebrates Native American Heritage Month from noon-2:30 p.m. at the Sparkman Center's courtyard. The attractions include Young Thunder, a drum group; traditional dancers; artisans; and a storyteller. For more information, call Jackie White at 876-9259.

Center Director issues Education Week proclamation

Nov. 13-17 is American Education Week. Marshall Center Director Art Stephenson issued the following proclamation.

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Center Director Art Stephenson, second from left, signs the American Education Week proclamation. From left, Dr. Shelia Nash-Stevenson, Marshall's University Affairs officer; Dr. Marilyn Lewis-Alim, an education analyst with Infinity Technology of Huntsville; and Jim Pruitt, manager of Marshall's Education Programs Office, look on.

WHEREAS, The U. S. Department of Education and 12 national organizations have declared November 13 - 17, 2000, American Education Week; and

WHEREAS, the theme of American Education Week 2000 is "CHILDREN-TEACHERS-PARENTS: HELPING STUDENTS ACHIEVE"; and

WHEREAS, the Marshall Space Flight Center is a leading national resource for all levels of American education in the advancement of scientific and technical information and expertise; and

WHEREAS, the Marshall Space Flight Center supports America's teachers and faculty as suppliers of NASA's human talent through the use of the NASA mission, facilities, and resources to enhance knowledge and skills in science, mathematics, engineering, and technology; and

WHEREAS, the Marshall Space Flight Center inspires America's students at K-12 and higher education levels through experiences, internships, and exposure to NASA's mission in science, mathematics, engineering, and technology; and

WHEREAS, the Marshall Space Flight Center facilitates development of instructional products based on NASA's unique mission to create learning opportunities that enlighten and inspire inquisitive minds and promote science literacy among the general public; and

WHEREAS, the Marshall Space Flight Center seeks creative and innovative ways to enhance the communication capabilities of the educational community in a time of exploding technology through collaborative efforts with educational institutions, industry, and other government agencies; and

WHEREAS, the Marshall Space Flight Center strives to improve services continuously to underserved communities, to those with disabilities, and to the Nation as a whole;

NOW, THEREFORE, I, A.G. STEPHENSON, DIRECTOR of the George C. Marshall Space Flight Center, do hereby proclaim the week of November 13 - 17, 2000, to be

AMERICAN EDUCATION WEEK

At the Marshall Space Flight Center and do hereby encourage all employees to continue to support our educational community in "Children-Teachers-Parents: Helping Students Achieve."

FAST Program speaker discusses history of disabilities

Marshall's Future Assets, Student Talents (FAST) Program will feature a discussion of the history of disabilities by Angeline Pinckard at 3 p.m. Nov. 14 in Bldg. 4200, room P106.

Pinckard is the executive director of the Alabama Governor's Committee on Employment of People with Disabilities.

Pinckard has presented more than 750 training programs seeking to educate state agencies, private businesses and consumer groups about the Americans with Disabilities Act and other disability related issues.

In 1958, she sustained a spinal cord injury as a result of an automobile accident and uses a wheelchair for mobility. Both personally and professionally she works with and for people with disabilities.

She holds a bachelor's degree in music education and a master's degree in counseling and human development from Troy State University in Alabama.

Engineers, technicians use thermography to detect structural abnormalities

by Miria Finckenor

Before any part — such as the Space Shuttle Main Engine Nozzle — can be sent into space, it has to be tested and tested again to ensure the part can do the job.

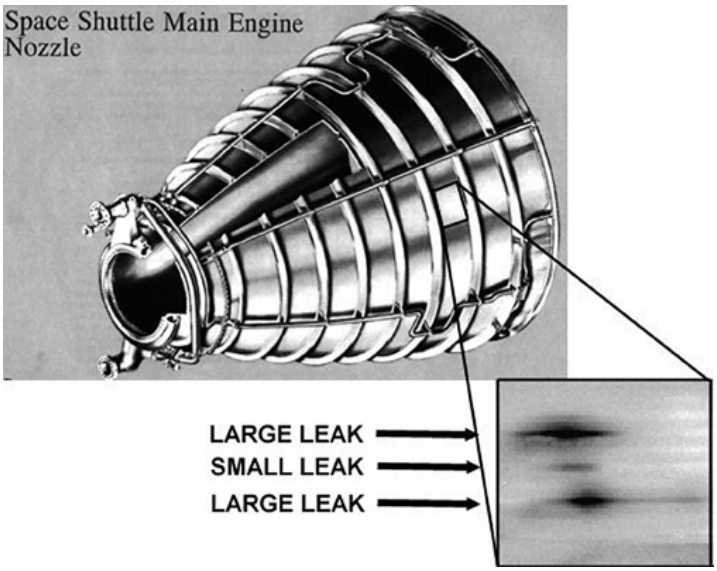
In the past, these nozzles and other complex structures have been difficult to inspect with conventional non-destructive methods, but not anymore.

Dr. Sam Russell and James Walker of Marshall's Nondestructive Evaluation and Tribology Group are developing a technique using infrared thermography to detect and pinpoint leaks in the nozzles as small as 2 standard cubic inches per minute.

The technology also has been adapted for non-metallic materials as well, such as composite bonds in the X-33 liquid hydrogen tank.

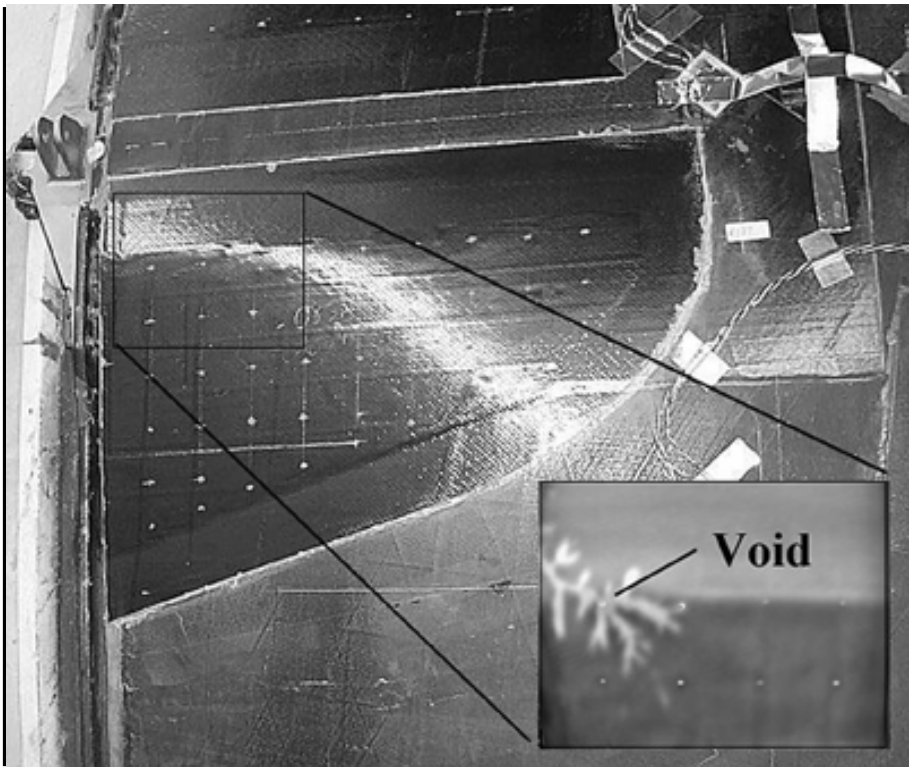
"Thermography works as an inspection tool because any object that is not at absolute zero temperature gives off infrared radiation," said Walker. "Infrared thermography uses a special camera and computer to detect the minute variations in heat given off by a structure, making it possible to see changes in temperature as small as 0.04 degrees Celsius that result from structural abnormalities."

Defects such as a separation, or unbonding, of the layers of the composite structures and leaks in pressurized systems, which could be visually undetectable, are easily visualized with thermography.



"For example, the Space Shuttle Main Engine nozzles are made up of more than 1,000 tapered stainless steel coolant tubes soldered to an Inconel structural jacket," Walker said. "Leaks between the tubes and the jacket are difficult to detect and can cause serious problems, including tube rupture and reduced engine performance. A bubbling liquid solution used for leak checks can indicate a leak, but cannot isolate the leaking tube or where along the length of the nozzle the leak exists."

The inspection method used now, borescopic inspection, requires that access holes be cut in the nozzle tubing that require repair after inspection. This technique is limited in the length of tube that can be inspected and a small but critical leak is often beyond its sensitivity.



In the case of the X-33 liquid hydrogen tank, the tank made of graphite/epoxy composite was fitted with 36 reinforcing caps after delivery to Marshall for structural testing.

"Because of the complex geometry of the tank and the caps, there was the potential for trapping air between the caps and outer tank wall during manufacture, which would reduce the strength of the cap," Walker said.

"Thermography was used to detect trapped air during the wet lay-up process, enabling actions to be taken to remove the air or refit the cap, and for a final post cure check of bond line integrity. Any critically sized voids that were found in the bond line after cure were then filled with epoxy and re-evaluated," he said.

The writer is a materials engineer in the Materials, Processes and Manufacturing Department.

Marshall team members receive Silver Snoopy Awards

Five of the seven crew members of Space Shuttle Mission STS-106 visited Marshall last Thursday. Commander Terry Wilcutt was accompanied by pilot Scott Altman and mission specialists Dr. Ed Lu, Rick Mastracchio and Dan Burbank. The two cosmonauts, Yuri Malenchenko and Dr. Boris Morukov, were unable to attend.

The STS-106 crew opened the International Space Station and prepared it for the arrival of the Expedition One crew Nov. 2.

The astronauts presented mission highlights in Morris Auditorium, presented 10 Silver Snoopy Awards and attended an evening fish fry.

The following employees received the awards: Douglas N. Wells, ED33; Robert M. Suggs, ED44; James E. Johnston, ED35; Vance K. George, Computer Sciences Corp.; George E. Baker, Wang Government Services; and Odell Huddleston, Jr., Thiokol. Carl Rudow, Morgan Research; Steven Pavelitz, Sverdrup; Jeanette Tokaz, Sverdrup; and Lee Miller, Sverdrup, are not pictured.

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

STS-106 Commander Terry Wilcutt, right, signs autographs for area school children and employees during the crew visit to Marshall.

Photo by Terry Leibold, NASA/Marshall Space Flight Center

Burbank, left, presents a Silver Snoopy Award to Huddleston.

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Wilcutt, center, presents Silver Snoopy Awards to Johnston, left, and Wells.

Photo by Emmett Given, NASA/Marshall Space Flight Center

Lu, left, presents Silver Snoopy Awards to George and Baker.

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Wilcutt, left, presents a Silver Snoopy Award to Suggs.

Marshall co-op student developing selective emitters for use as a free laser power source

by Debra Valine

Bryan Jennette — a co-op student working with scientists Ken Herren and Dr. Dennis Tucker in Marshall's Space Optics Manufacturing Technology Center — is developing a new power source for lasers.

The University of Alabama in Huntsville graduate physics student is developing material composites that will convert light to laser energy and may some day provide energy in space.

Jennette, from Nashville, already holds two bachelor's degrees: one in aerospace engineering from Middle Tennessee State University in Murfreesboro and one in physics from the University of Tennessee in Chattanooga. He's been in Huntsville 14 months.

This is Jennette's first semester with the Marshall Center as a co-op student. He started his research as a member of the summer faculty fellowship program last summer working with Dr. Don Gregory, professor of physics at UAH. His work is a continuation of that research.

The research involves building a material compound called a selective emitter — fibers and rare earth metals woven together in a process similar to paper making.

The selective emitter uses sunlight to produce an energy source that can be used to power a laser.

"You heat up the composite, or illuminate it with sunlight, and it emits light at a specific wavelength," Jennette said. "Traditionally, they are used for thermo-photovoltaic systems which convert light to electrical energy. They are used since they emit light at a wavelength that matches up with the bandgap energy of a solar cell.

"We used a formula that someone else developed, but I duplicated this material on my own," Jennette said. "We plan to take the selective emitter and turn it into useful energy for a laser."

"In orbit you could have free laser energy because you would not have to use on-board electricity," said Herren, who came up with the idea and is Jennette's mentor.

"It also has application for a lunar base, Mars or anywhere you have a high quality source of heat," Herren said. "Even a geothermal vent would work. It converts heat to light and then light to laser energy.

"We will be testing materials to see at what capacity they work," said Tucker, a Marshall scientist who is working on the emitters with Jennette. "We also will make solid emitters using tapecasting. We have to come up with the best mixture to get the best product.

"The paper is the baseline," Tucker said. "Now we are trying to make it better, because paper breaks easily. We are aiming to get the same results with a much more durable material."

Jennette plans to have his research completed by September 2001, and he wants to stay at Marshall as a full-time employee. "The first two processes will make up the bulk of my master's thesis," Jennette said.

A patent disclosure on this technology has been filed with Marshall's Technology Transfer Department. That department researches the technology before filing for a patent.

"It's a good idea because you are always looking for a better power source," Herren said. "Bryan is the fourth student I have worked with." "It is great working with the students because they ask such great questions. We went out and got the materials and put them together in the shop. This type of work is both interesting and fun."

The writer, employed by ASRI, is the Marshall Star editor.

Photo by Emmett Given, NASA/Marshall Space Flight Center

Jennette heats material he is developing as a selective emitter for free laser energy research.

Job Opportunities

Reassignment Bulletin 01-04-RE, AST, Technical Management, GS-801-13, Space Shuttle Projects Office, Space Shuttle Main Engine Project. Closes Nov. 22.

Reassignment Bulletin 01-05-CP, AST, Aerospace Flight Systems, GS-861-13, Science Directorate, Gravity Probe-B Office. Closes Nov. 22.

Excellence

Continued from page 1

director of Safety and Mission Assurance Office.

"These winners will be honored with a plaque and are automatically nominated by Marshall for the George M. Low Award," she said. The Low Award is NASA's most prestigious award for quality and performance in the aerospace industry.

Contractors are rated on criteria such as customer satisfaction and contract technical performance; schedule performance; cost performance; management initiatives responsive to Marshall's strategic goals; leadership and continuous improvement; and innovative technology breakthroughs.

TRW Space & Electronics Group of Redondo Beach, Calif., was recognized for extensive technology development activities in support of propulsion development, precision optical system design, and remote sensing.

"TRW's most notable achievement is the technology breakthrough represented by the Chandra X-ray Observatory," Stephenson said. "The on-orbit performance has exceeded everyone's expectations. We are proud to honor their uncompromising focus on quality."

Two noteworthy TRW achievements were the Advanced Columbium Liquid Apogee Engine and the Low Cost Pintle Engine. The company has also demonstrated exceptional community involvement with the space program by sponsoring low-income students to attend U.S. Space Camp and linking schools to NASA Web sites.

Sverdrup Technology of Huntsville has served as the support contractor for the Engineering and Science Directorates for the past 10 years. Sverdrup contributes to Marshall-managed projects such as the Space Transportation System, microgravity experiments, and the International Space Station, as well as in-house projects such as the Space-Based Observatories and technology development and application.

"The people of Sverdrup have made numerous contributions to the technical excellence of the Marshall mission," Stephenson said.

Sverdrup has maintained consistently high award fees during the past three years and has demonstrated an outstanding commitment to timeliness by meeting or exceeding milestones on 98 percent of all assigned tasks. One noteworthy achievement was the automated task management system — at no expense to the government — that saves 40 hours of processing time per task.

Native American Services of Huntsville is a prime contractor within the Materials, Processes and Manufacturing Department at Marshall. Its primary tasks are to operate the Materials Combustion Research Facility and to maintain the Materials and Processes Technical Information Systems. The company's overall accuracy of testing performance has been 99.98 percent with an overall effectiveness of testing schedule at 99.94 percent.

"Native American Services has continually been rated superior in yearly reviews and demonstrated an excellent three-year cost reduction record, and benchmark against the world-class operations of Allied Signal.

The writer is Marshall's quality management associate.

Center Announcements

- ***2000 FEHB Health Season —*** The 2000 Federal Employees Health Benefits (FEHB) Open Season is Nov. 13 through Dec. 11.
- ***Veterans Day Parade —*** The Marshall team members and their families will participate in the 2000 Huntsville Veterans Day Parade at 11 a.m. Nov. 11 starting at the Hilton Hotel in Huntsville. Marshall team members are asked to wear NASA/MSFC shirts or jackets, if possible.
- ***Nut Sale —*** The NASA Exchange holiday nut sale begins at 9 a.m. Nov. 17. Sales will be from 9 a.m.-4 p.m., Monday - Friday (excluding holidays) in the Marshall Activities Bldg. 4752 in racquetball court no. 2. For sale are cashews —16 oz. for $5.50; chocolate-covered pecans — 16 oz. for $7; English walnuts — 16 oz. for $3.75; hickory smoked almonds — 16 oz. for $3.75; honey roasted almonds — 16 oz. for $3.75; natural almonds — 16 oz. for $3.75; pecans — 16 oz. for $5.50; raw peanuts — 16 oz. for $2; and salted in shell natural pistachios — 16 oz. for $3.75.
- ***NCMA Luncheon —*** The Huntsville Chapter of the National Contract Management Association will be having a joint luncheon with the Federal Bar Association at 11:30 a.m. Nov. 16 at the Four Points Hotel at the Huntsville International Airport. Cost for the luncheon is $10. Donna S. Ireton, director of ASD's Acquisition Management Acquisition Management and Training Group, will speak on e-commerce initiatives in the federal government. For reservations, send an email to dpelham@hiwaay.net or call 533-3954 by Nov. 14.
- ***Aggie Bonfire —*** Texas A&M former students and friends invite you to the North Alabama Aggie Bonfire at 6 p.m. Nov. 11. For information, call Mike McColpin at (256) 586-7018 or send e-mail to: Jmmccolpin@mindspring.com
- ***Barber Shop Closed —*** S&H Barber Shop in Bldg. 4203 will be closed Nov. 23 and 24 for Thanksgiving. Regular hours are 8 a.m.-4:45 p.m. Monday through Friday. For appointments, call 881-7932.
- ***NARFE Meets —*** The National Association of Retired Federal Employers (NARFE), Chapter 736, will meet at 11 a.m. Nov. 15 at Piccadilly Cafeteria in Decatur. Our holiday project — bring suitable items for the Flint Nursing Home patients that will be delivered in time for Christmas. There will not be a December meeting. For information, call Marty Eddy at 773-4826.
- ***Christmas Dinner Dance —*** The MARS Ballroom Dance Club will host the Christmas Dinner Dance from 6:30-11 p.m. Dec. 2 at the Von Braun Center. The semi-formal event will have a holiday buffet dinner and the Little Big Band will play ballroom dance music. Reservations for a table of eight can be made by calling Woody Bombara at 650-0200. Tickets are available for $25 per person, with a $5 discount for club members, until close of business Nov. 27, unless sold-out early. Tickets can be purchased from Linda Kinney at 544-0563 or in Bldg. 4203, room 3319; Bob Williams at 544-3998 or in Bldg. 4203, room 4319; Hugo Berry at 544-3525 or in Bldg. 4487, room A209A; Pat Sage at 544-5427 or in Bldg. 4610, room1021A; Tamara Landers at 544-6818 or in Bldg. 4612 or in room 2401; Ed Ogozalek at 837-1486; Palmer Herndon at 534-7408; or Joyce Davis at 880-2270.
- ***Family Volunteer Day —*** The Madison/Marshall County Chapter of the American Red Cross will hold a family volunteer day from 1-4 p.m. Nov. 18 at the American Red Cross at 1101 Washington St. in Huntsville. For one hour, volunteers will make holiday ornaments that will be offered to the community for a donation to the Red Cross or make holiday cards for local hospitalized veterans. Responses are required. Call 536-0084, ext. 210, no later than Nov. 10.
- ***Black History Month Volunteers —*** Volunteers are being accepted to chair or serve on various committees for the Year 2001 Black History Month activities. To volunteer, send an e-mail to james.bailey@msfc.nasa.gov or jackie.pates@msfc.nasa.gov

Employee Ads

Miscellaneous

★ Signature 2000 25" color TV w/stereo, remote and menu options, $150. 837-3769
★ Storm door, 36"x80", left-hand, bronze, $100; pull-down staircase, $50; soccer goal, $20; microwave, $60. 881-6040
★ Dining room set, oak finish, table and 4 chairs, $125 obo. 464-9055
★ Bose surround speaker stands, 4 each, telescope from 2.5' to 3.5', $27 each. 772-4205
★ Mini-bike, 3HP, shocks on seat, runs but needs work, $85 obo. 464-5819
★ Storm windows w/screens, 36x62, 8 each, $40; outdoor wooden shutters, 9 sets, $35; window air conditioner, 8K btu, $60. 379-3546
★ Dining room table, round, 48", pedestal base, solid wood, walnut finish, $75. 961-1603
★ 1972 Yamaha 125 Enduro, 4,600 miles, as-is, $200; RWS Diana Model-34 pellet rifle, .177, 1,000 fps, $180. 230-2521
★ Compton's Zondervan NIV study bible for the PC, $5. 721-0617
★ Entertainment center, black finish, $35; mirrored bar, $35; set of 3 mirrored fern stands, $30. 534-3393 after 6 p.m.
★ MacQuadra 605 monitor, Laserwriter, software, $275; Sega Dreamcast, many extras, $250; 10-speed bike, $40. 851-8085
★ 1993 Harley Davidson Sportster XLH 883, 14,300 miles, many extras, $8,000. 882-9053
★ Mink coat, $125. 536-8632
★ 1992 Suzuki Bandit motorcycle GSF-400N, 14K miles, $2,400. 859-0729
★ Moving boxes, 6 ea. 18"x28"; 11 ea. 18"x16"; 8 ea. 17"x13"; 4 ea. 24"x18"; 13 ea. 29"x18"; 2 ea. 46"x24", $20. 721-8770
★ Student desk and matching bookcase, $75. 859-5475
★ Fiberglass running boards w/fender flares, fits 93-99 Suburban, $150; Class 2 hitch for Pathfinder, $70. 880-9487
★ Two sets of Disney bedding, twin size, primary colors; $25 ea.; Hooked-on-Phonics, deluxe edition, $249 obo. 851-6290 after 6 p.m.

Vehicles

★ 1996 Honda Passport, 62K mles, motor-tran warranty, 2wd, ps/pb/pw/pdl, $12,500. 772-5375
★ 1995 Ford Mustang GT, green/black leather int., auto, 69K miles, $9,250 obo. 772-0928
★ 1995 GMC Suburban SLE, V-8, auto, all-power, rear-air, AM/FM/CD changer, ABS, towing package, $15,000. 539-6201
★ 1993 Mazda MX-6, sunroof, new tires, power windows/locks/mirrors, CD player, $4,000 obo. 858-5552
★ 1997 Trans Am, T-top, new tires, 87K miles, $16,000. 256-880-3854
★ 1998 Dodge pickup, V-8, all-power, 19K miles, in warranty, $15,500. 931-728-6337
★ 1989 Chevy Silverado C1500 pickup, auto, air, bedliner, 164K miles, $3,700. 837-2386
★ 1989 Pontiac Firebird Formula 350, T.P.I. engine, 82K miles, one-owner, $3,700. 534-8186
★ 1986 Suburban, dual a/c, second-owner, $3,950; 1995 Camry LE, one-owner, $8,190. 325-6000
★ 1996 Mazda 626DX , burgundy, 93K miles, $8,000. 773-1211/pager 341-6671
★ 1995 Jeep Grand Cherokee Laredo, 4.0L, 4-WD, 4-door, am/fm cassette, 88K miles, driftwood/cloth interior, $8,500. 722-4767
★ 2000 Ford Ranger XLT Super Cab, a/c, ps, step side, 8K miles, $17,500. 379-4980
★ 1998 Chrysler Town & Country LX van, 4-captain chairs, tan, 48K miles, $18,000. 830-4846
★ 1985 Oldsmobile Delta 88 sedan, 4-door, V-8, a/c, ps/pb, 137K miles, $995. 772-0558
★ 1996 Mercury Grand Marquis, 4-door, Model GS, bronze, $7,705. 653-0798
★ 1996 Firebird, white, V-6, automatic, air, cruise, tilt wheel, am/fm/CD/equalizer, 82K miles, Redstone loan value. 256-586-4241
★ 1999 Dodge, 3/4-ton, 4x4, quad cab SLT pickup, 24-valve Cummins diesel, towing package, g/n ball, $25,500. 931-732-4742
★ 1992 Dodge Caravan SE van, low miles, power door locks, cruise, tilt, tape, new tires, $5,500 obo. 461-8182/4908
★ 1990 Cadillac Deville, red and white, all power, am/fm/cassette, a/c, cruise, $3,950. 461-8442

Found

★ Gold ring in Bldg. 4487 hallway near room B241/B243. Call 544-1460 to identify
★ Sweater and necklace near Bldg. 4752, probably lost on Safety Day. Call 544-4758 to identify/claim
★ Set of keys in Morris Auditorium, Bldg. 4200. Call 544-4758 to identify/claim
★ Glasses outside Bldg. 4203. Pick up in Notions Shop.

Wanted

★ Air hockey table. 830-5157 after 3:30 p.m.
★ Child's play refrigerator. 880-2290

Sports

NASA Bowling League — Margaret Jackson — a fan for many years — recently joined the team as the first women bowler in the history of the NASA Bowling League. In recent years the ABC has made rule changes to allow women to join, and participate in ABC sanctioned events. We in the league are encouraging all NASA employees, their dependents and onsite contractors to join us. The league bowls at 6 p.m. Tuesdays at Monarch Lanes on Bob Wallace Avenue. For more information, call Chuck Seal at 544-1120, or Rob Lake at 544-1176.

NASA Ski Week — The 10th annual NASA Ski Week will be hosted at Snowmass, Colo., Jan. 20-27, 2001. For more information, call 1-233-0705, or send e-mail to: Thomas.S.Dollman@msfc.nasa.gov

Obituaries

Massey, John W., 69, of Huntsville, died Oct. 10. He retired from Marshall in 1987 where he worked as AST, Structural Materials. He is survived by his wife, Ruth K. Massey.

Kittredge, Howard B., 71, died Oct. 19. He retired from Marshall in 1984 where he worked as a quality assurance specialist. He is survived by his wife, Anne Kittredge.

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Manager of Internal Relations and Communications — Robert Champion
Editor — Debra Valine

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